

**To:** Christner, Jan[Jan.Christner@WestonSolutions.com]; McComb, Martin[McComb.Martin@epa.gov]  
**From:** Way, Steven  
**Sent:** Thur 9/3/2015 8:57:24 PM  
**Subject:** RE: Load Evaluation

Jan, as we have discussed, the issue is concentration not load. The question about pH is also needing an answer. The loading information will allow us to answer concentration changes but we do not want to get focused on loading versus concentration in my opinion.

Let's talk soon

Steven Way

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**From:** Christner, Jan [mailto:Jan.Christner@WestonSolutions.com]  
**Sent:** Thursday, September 03, 2015 2:20 PM  
**To:** McComb, Martin; Way, Steven  
**Subject:** FW: Load Evaluation

See attached items discussed with Joyel and Craig. I've pretty much deleted item 3 because it just gets confusing and I was told to stick to short, easily explained points.

I have an e-mail out to Steve Auer so we can bring in historic fish toxicity to the “implications to biota in the Animas River” point. Hopefully Dan Wall can weigh in on this point because he is the one who knows toxicity and the implications in the Animas to potentially degraded water quality.

Per all those tables I sent earlier (and attached here because I sent them to Joyel and Craig). I’m making just one table that shows the estimated concentrations for Scenario 1 and have added a column with the maximum concentration at A72. I am also adding a row under each contaminant that shows the # exceedances of WQS during that month based on historic data (no historic for Dec/Jan). I’m having to use average non-runoff or runoff hardnesses to estimate WQS since the ESAT database didn’t have hardnesses for all sample events. (That’s just a qualifier – as Steve knows, I like to be precise. It will be a fine comparison anyway...)

**From:** Christner, Jan  
**Sent:** Thursday, September 03, 2015 11:48 AM  
**To:** [dhieux.joyel@epa.gov](mailto:dhieux.joyel@epa.gov); [myers.craig@epa.gov](mailto:myers.craig@epa.gov)  
**Subject:** Load Evaluation

Joyel and Craig,

The attached Loading Estimate document shows the load evaluation Megan and I did, with WQS exceedances highlighted and average non-runoff concentrations shown in the last column. I will add the maximum measured non-runoff concentrations also because that may be informative for all. I’m sending this first because you will see what information is there and you can tell me if there is something else you want to see. Maybe a summary for specific metals of concern that also shows historic statistics? Or a % of average or maximum non-runoff conditions?

The Glow Estimate from Gold King and 4 Mines is a document I sent several weeks ago, putting the flow from the mine into perspective. The Summary of Loading from 4 mines shows loading from the 4 closest mines. There are many more mines in the vicinity, these have just been identified as the biggest contributors to Cement Creek upstream of South Fork. Probably the biggest demonstration in this document is for point 1, the loading from the 4 mines before and after the release. (I’ll put the primary graphic showing the overall loads of Al, Cd, Cu, Fe, Pb, Mn, and Zn in July 2015 vs August 2015 into the bullet points below – not sure if that one made it into the attached Summary of Loading from 4 Mines sheet.)

Proposed bullet items that I will flesh out:

1. There used to be xx lbs/day (sum of contaminants/or I can break out by contaminant) and now there are yy lbs/d. (With graphic)
2. This increases loading at the base of Cement Creek by xxx lb/d.
3. This apparently impacts the load at A72 by xx% (this varies by contaminant because some are attenuated in the Animas River between Cement Creek and A72 due to the pH change).
4. Currently, water quality downstream of Silverton is xxx (relative to WQS and historical low flow average and maximum). {xx contaminants exceed WQS at A72 and Bakers Bridge by xxxx}.
5. Loading analysis that considers the effects of lower flows during winter months on water quality at A72 and Bakers Bridge indicates that without treatment of the Gold King Mine discharge, concentrations might now exceed both acute and chronic water quality standards downstream of Silverton xx % of time for cadmium, .....).
6. POINT FOR DAN WALL TO ADD: Animas River water and sediment was toxic to fish prior to the Gold King Mine release (date). Given the estimated concentrations at A72 and Bakers Bridge, it might be expected that the impacts to fish/human health downstream of the site might be....

Is that what you're thinking? I'll be working on these so let me know if you want to make another point or don't want to make one of these.

Jan

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